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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/913,569	08/13/2001	Enno Krebbers	BB-1344	2373

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E I Du Pont De Nemours And Company  
Legal-Patents  
Wilmington, DE 19898

EXAMINER

KALLIS, RUSSELL

ART UNIT

PAPER NUMBER

1638

DATE MAILED: 02/24/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

**Application No.**

09/913,569

**Applicant(s)**

KREBBERS ET AL.

**Examiner**

Russell Kallis

**Art Unit**

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 02 June 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 24-36 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 24-26 and 29-34 is/are rejected.
- 7) ☒ Claim(s) 27 and 28 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)             | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)    | Paper No(s)/Mail Date. _____  |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____   | 6) <input type="checkbox"/> Other: _____                                    |

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## **DETAILED ACTION**

### ***Election/Restrictions***

Applicant's election without traverse of Group I, Claims 1-9 and SEQ ID NO: 5 and 6 in the reply filed on 8/25/2004 is acknowledged. Claims 1-23 are canceled. Claims 24-36 are newly added. Claims 24-36 are pending and examined.

### ***Priority***

Applicant's claim for domestic priority under 35 U.S.C. 119(e) is acknowledged. However, the provisional application upon which priority is claimed fails to provide adequate support under 35 U.S.C. 112 for claims 24-39 drawn to an isolated polynucleotide of SEQ ID NO: 5 encoding a viral movement protein of SEQ ID NO: 6, and vectors, constructs, cells, plants and methods therewith of this application. U.S. provisional application 60/128,092 disclosed SEQ ID NO: 1 a partial length polynucleotide of SEQ ID NO: 1 encoding a partial length amino acid of SEQ ID NO: 2 from maize. Further SEQ ID NO: 1 and 2 of 60/128,092 disclose sequences that do not share the exact same sequences from their analogous portions of SEQ ID NO: 5 and 6 of the instant application.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

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Claims 24-25 are rejected under 35 U.S.C. 102(b) as being anticipated by Kim C. *et al.* GenBank Accession AAC35866 also GI: 3603473; March 1, 1998 in light of evidence in Applicant's specification.

The claims are broadly drawn to nucleotide sequences that encode viral movement polypeptides having an amino acid sequence of at least 85% and at least 90% sequence identity to SEQ ID NO: 6 and wherein the priority date for claims drawn to SEQ ID NO: 6 is March 6, 2000.

Kim teaches elicitor responsive gene-3 from rice encoding a protein identified as a plant viral movement protein (see specification page 1 line 25, page 21 line 20) that has at least 90% sequence identity to SEQ ID NO: 6 (specification Table 4, line 3), and thus the reference teaches all the limitations of Claims 24 and 25.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 24-26 and 29-34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kim C. *et al.* GenBank Accession AAC35866 also GI: 3603473 in view of Xoconostle-Cazares B. *et al.* Science, January 1, 1999; Vol. 23 pp. 94-98 and in further view of Almon E. *et al.* Plant Physiology, 1997; Vol. 115, pp. 1599-1607.

The claims are broadly drawn to nucleotide sequences that encode viral movement polypeptides having an amino acid sequence of at least 85%, at least 90%, and at least 95%

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sequence identity to SEQ ID NO: 6 and wherein the priority date for claims drawn to SEQ ID NO: 6 is March 6, 2000.

Kim teaches GenBank Accession AAC35866 also GI: 3603473 an isolated sequence from maize wherein the protein has been identified as a plant viral movement protein (see specification page 1 line 25, page 21 line 20) that has at least 90% sequence identity to SEQ ID NO: 6 (specification Table 4, line 3).

Kim does not teach an isolated polynucleotide encoding a viral movement polypeptide that has at least 95% sequence identity to SEQ ID NO: 6.

Xoconostle-Cazares teaches the purification of CmPP16 protein and the isolation of a polynucleotide encoding a plant homolog of a viral movement protein, CmPP16 from *curcubita maxima* (pumpkin) using RT-PCR and southern hybridization techniques (page 95 column 1 lines 24-56); immunological detection of CmPP16 expression in sieve element tissue of pumpkin plants (page 96 column 1, 1<sup>st</sup> paragraph); CmPP16 mediated trafficking of micro-injected sense and antisense RNA (page 96 Table 1 and page 97 column 1 lines 10-21); movement of CmPP16 from the companion cell of pumpkin to the phloem sap of grafted cucumber; and gene structure and comparison of CmPP16 and related proteins from rice and maize along with the RCNMV-MP (red clover necrotic mosaic virus movement protein) (page 95 Figure 2).

Almon teaches increased carbon partitioning to potato tubers in transformed potato expressing the movement protein of tobacco mosaic virus (page 1603 column 2 lines 21-27 and page 1604 figure 4b) a vector and recombinant construct, a transformed plant, cell and seed and methods thereof and a method of altering viral movement protein expression in a transformed plant (page 1600 transformation section in column 1 and page 1602 column 2 and Table I).

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It would have been obvious to modify the invention of Kim, a polynucleotide sequence encoding a plant viral movement protein having at least 90% sequence identity to SEQ ID NO: 6, by further isolating a polynucleotide encoding a plant viral movement protein having at least 95% sequence identity to SEQ ID NO: 6 using RT-PCR and southern hybridization and by comparing sequences to the known plant movement proteins to isolate and identify putative plant homologs of viral movement proteins as taught by Xoconostle-Cazares, and by transforming plants to alter the level of expression of a viral movement protein as taught by Almon. One of skill in the art would have been motivated by the teachings of Xoconostle-Cazares that plant viral movement proteins could be purified and their coding sequences isolated and identified by comparison to known viral movement proteins and plant homologs, that plant viral movement proteins could be characterized with respect to their activity and tissue specific expression inside a plant cell, and that plant homologs of viral movement proteins would behave in a fashion similar to their viral homologs, and further motivated by the teaching of Almon that transgene expression of polynucleotides encoding viral movement proteins would alter viral movement protein expression levels in a plant cell and that tuber dry mass would increase in potatoes transformed with a viral movement protein; and that one of skill in the art would have a reasonable expectation of success of isolating plant viral movement proteins or identifying them from public databases and transforming them into plants and altering the level of expression of viral movement proteins given the success of both Xoconostle-Cazares and Almon.

Claims 24-26 and 29-34 are rejected.

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Claims 27 and 28 objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Russell Kallis whose telephone number is (571) 272-0798. The examiner can normally be reached on M-F 8:30-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Amy Nelson can be reached on (571) 272-0804. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

A handwritten signature in black ink that reads "Russell Kallis". The signature is written in a cursive, flowing style.

Russell Kallis Ph.D.  
February 9, 2005